

Work Order ID 164885

164885

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Tuesday, August 08, 2017 9:27:28 AM

8/16

Item ID: D5237-5 Accept *N900040100* Setup Start *NS1*
 Revision ID: Stop *NS2*
 Item Name: Bracket
 Start Date: 8/1/2017 Start Qty: 8.00 *8* Cust Item ID:
 Required Date: 8/10/2017 Req'd Qty: 8.00 *8* Customer:
 Reference:

Approvals: Process Plan: [Signature] Date: AUG 08 2017 Tooling: Date: Run Start *NR1*
 QC: Date: SPC (Y/N): Date: Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D5237	B								

100 0.00
 100
 Bandsaw Memo 0.10 D. 17-08-17 8 0 DAS 08 9-99
 Jeaspa Bandsaw cut blank 5.625" long

105 0.51
 105
 HAAS 5AXIS Memo 4.10 D. 17-08-17 8 0 DAS 08 9-99
 HAAS CNC vertical machine #5 1-MILL as per Dwg
 Dwg Rev: B
 Folio Rev: AA
 2-Deburr

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐																																																													
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval																																																										
Description Work Order Deviation				Disposition				Completed By Lead hand / Supervisor Approval Verification QC / QA Coordinator Approval																																																									
Root Cause		FAULT CATEGORY																																																															
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐	Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐	Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐	Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐	Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐	Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐	Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐	Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐	LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐	Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐	Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____			
Misidentified ☐	Past Due ☐																																																																

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Page 2

Item ID: D5237-5 Accept *N900040100* Setup Start *NS1*
Revision ID: Stop *NS2*
Item Name: Bracket
Start Date: 8/1/2017 Start Qty: 8.00 *8* Cust Item ID:
Required Date: 8/10/2017 Req'd Qty: 8.00 *8* Customer:
Reference:

Approvals: Process Plan: Date: Tooling: Date: Run Start *NR1*
QC: Date: SPC (Y/N): Date: Stop *NR2*

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
110 *110* QC Quality Control	QC2- Inspect parts off machine FAI/FAIB Memo	0.00 0.08		17-08-18		8	0		DAS 08 9-89
120 *120* QC Quality Control	QC8- Inspect parts - second check Memo	0.00 0.16				8	0		DAS 14 9-89 17/08/19
130 *130* HandFinish Hand Finishing	Chemical Conversion Coat per QSI005 4.1 Memo	0.00 0.60				8	0		2017/08/21 JSL BEB

DQA: _____ Date: _____



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Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By _____ Lead hand / Supervisor Approval Verification _____ QC / QA Coordinator Approval _____		
Description Work Order Deviation				Disposition					
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐		Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Mislabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐					
OTHER : ☐									

Work Order ID 164885

Tuesday, August 08, 2017 9:27:28 AM

164885

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Item ID: D5237-5

Accept

N900040100

Setup Start

NS1

Revision ID:

Stop

NS2

Item Name: Bracket

Start Date: 8/1/2017 Start Qty: 8.00

8

Cust Item ID:

Required Date: 8/10/2017 Req'd Qty: 8.00

8

Customer:

Reference:

Approvals:

Process Plan: _____

Date: _____

Tooling: _____

Date: _____

Run Start

NR1

QC: _____

Date: _____

SPC (Y/N): _____

Date: _____

Stop

NR2Sequence ID/
Work Center IDOperation
DescriptionSet Up/
Run Hours

Tool ID

Tool #

Plan
CodeAccept
QtyReject
QtyReject
NumberInsp.
Stamp

140

QC7-Inspect Chemical Conversion Coat

0.00

140

QC

Memo

0.08

Quality Control

AUG 22 2017

170

Identify as per dwg & Stock Location: SH151

0.00

170

Packaging

Memo

0.08

Packaging

AUG 22 2017

DAS
6
9-89

180

QC21- Final Inspection - Work Order Release

0.00

180

QC

Memo

0.80

Quality Control

DAS
21
9-89

AUG 25 2017

DAS
21
9-89

AUG 22 2017

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

QA Closed: _____ Date: _____

Work Order update only ☐

Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date :		Step #:		QTY Effective :			MRB (QSI042) Approval Completed By _____ Lead hand / Supervisor Approval Verification _____ QC / QA Coordinator Approval _____		
Description Work Order Deviation				Disposition					
Root Cause Environment ☐ Design ☐ Doc/Data ☐ Equip/Tooling ☐ Handling/Pre ☐ Material ☐ Internal Transport ☐ Tribal Knowledge ☐ LOA ☐ Substation ☐ Past Expiry Date ☐ Misidentified ☐ No Re-verification ☐ Operator ☐ Offset/Setup ☐ Supplier ☐ Training ☐ Use for Testing ☐ Poor Information ☐ Rushing ☐ Product Improvement ☐ Process Improvement ☐ Manufacturing Process ☐ Past Due ☐		FAULT CATEGORY Pressure/Forced ☐ Bending ☐ Centre Not Concentric ☐ Cracks ☐ Crimp/Kink/Ripple/Wave ☐ Cuffs ☐ Crushing ☐ Heat Treat ☐ Wave/Twist in Tube ☐ Marks/Chatter ☐ Temperature/Cure ☐ Set-up ☐ BOM/Route ☐ Broken/Damage/Defect ☐ Inspection Incomplete/Unqualified ☐ Contamination ☐ Countersink ☐ Cut Too Short ☐ Instructions Incomplete/Unclear ☐ Drill Holes ☐ Power Loss/Surge ☐ Folio/Program ☐ Grain ☐ Weld ☐ Wrong Stock Pulled ☐ Out of Sequence ☐ Off-set ☐ Misabeled ☐ Fit/Function ☐ Misaligned/off center ☐ Positioned Wrong ☐ Outside Dimensions ☐ Over/Under tolerance ☐ Part Incorrect ☐ Part Lost/Missing ☐ Part Moved ☐ Drawing ☐ Finish ☐ Misread ☐ Turning Sequence ☐		OTHER : ☐					

Picklist Print

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Work Order ID: 164885

164885

Parent Item: D5237-5

D5237-5

Parent Item Name: Bracket

Start Date: 8/1/2017

Required Date: 8/10/2017

Start Qty: 8.00

Required Qty: 8.00

Comments: IPP Rev: A RQ 15.01.15. Verified by: DD

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
M6061T6B2.000X04.50 0		Purchased	No			100	f	9.5000	0.468	3.941053			

M6061T6B2 000X04 500

6061T6 Bar 2.00 x 4.500 (cut to 5.00 OR 5.625 +/- .000)

**

L.e 17-08-17

Location

Loc Qty

Loc Code

MAT008

9.5

m138109

9.5

→ M134058

→ M136200

→ M6061T6 B2.000 X 05.000
(this w/p only)

0.470 ft

3.300 ft

DQA: _____ Date: _____



WORK ORDER NON-CONFORMANCE / UPDATE

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Work Order: _____ Part No. _____ NCR No. _____		DISPOSITION Rework ☐ Scrap ☐ Use-as-is ☐ Suspected Unapproved ☐		AGAINST DEPARTMENT/PROCESS Skid-tube ☐ Machining ☐ Thermoforming ☐ Large Fab ☐ Cross tube ☐ Small Fab ☐ Finishing ☐ Composite ☐ Water Jet ☐ Prod. Eng. Coord. ☐ Rec/Store/Packaging ☐ Supplier ☐ Engineering ☐ Quality ☐ Other ☐					
Date : _____		Step #: _____		QTY Effective : _____			MRB (QSI042) Approval 		
Description Work Order Deviation				Disposition					
				Completed By					
				Lead hand / Supervisor Approval Verification					
				QC / QA Coordinator Approval					
Root Cause		FAULT CATEGORY							
Environment ☐	No Re-verification ☐	Pressure/Forced ☐	Temperature/Cure ☐	Power Loss/Surge ☐	Positioned Wrong ☐				
Design ☐	Operator ☐	Bending ☐	Set-up ☐	Folio/Program ☐	Outside Dimensions ☐				
Doc/Data ☐	Offset/Setup ☐	Centre Not Concentric ☐	BOM/Route ☐	Grain ☐	Over/Under tolerance ☐				
Equip/Tooling ☐	Supplier ☐	Cracks ☐	Broken/Damage/Defect ☐	Weld ☐	Part Incorrect ☐				
Handling/Pre ☐	Training ☐	Crimp/Kink/Ripple/Wave ☐	Inspection Incomplete/Unqualified ☐	Wrong Stock Pulled ☐	Part Lost/Missing ☐				
Material ☐	Use for Testing ☐	Cuffs ☐	Contamination ☐	Out of Sequence ☐	Part Moved ☐				
Internal Transport ☐	Poor Information ☐	Crushing ☐	Countersink ☐	Off-set ☐	Drawing ☐				
Tribal Knowledge ☐	Rushing ☐	Heat Treat ☐	Cut Too Short ☐	Mislabeled ☐	Finish ☐				
LOA ☐	Product Improvement ☐	Wave/Twist in Tube ☐	Instructions Incomplete/Unclear ☐	Fit/Function ☐	Misread ☐				
Substation ☐	Process Improvement ☐	Marks/Chatter ☐	Drill Holes ☐	Misaligned/off center ☐	Turning Sequence ☐				
Past Expiry Date ☐	Manufacturing Process ☐	OTHER : _____							
Misidentified ☐	Past Due ☐								

DART AEROSPACE LTD		Work Order:	164885
Description: Bracket		Part Number:	D5237-5
Inspection Dwg: D5237 Rev: B		Page 1 of 2	

INSPECTION SHEET

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
Ø0.201	+0.005/-0.001	Ø0.202	✓		Vern	GA-B
0.50	+/-0.030	0.500	✓		"	"
1.500	+/-0.005	1.500	✓		"	"
2.530	+/-0.005	2.530	✓		"	"
1.500	+/-0.005	1.500	✓		"	"
0.88	+/-0.030	0.881	✓		"	"
0.10	+/-0.030	0.103	✓		H-G	31006
0.460	+0.005/-0.000	0.460	✓		Vern/G-P	GA-B / ref.
0.650	+0.030/-0.000	0.667	✓		T-G/Mic	ref. / GA-03
1.15	+/-0.030	1.168	✓		T-G/Mic	ref. / GA-02
0.100	+0.000/-0.005	0.097	✓		M-G	31006
0.44	+/-0.030	0.421	✓		D-G	GA-08
0.34	+/-0.030	0.350	✓		"	"
R0.25	+/-0.030	R0.250	✓		"	"
0.66	+/-0.030	0.657	✓		Vern	GA-B
0.380	+0.000/-0.002	0.3785	✓		H-G	31006
2.825	+/-0.005	2.824	✓		"	"
Ø0.252	+0.005/-0.000	Ø0.252	✓		Vern	GA-B
0.25	+/-0.030	0.251	✓		"	"
1.41	+/-0.030	1.406	✓		H-G	31006
54°	+/-0.5°	54°	✓		Angle M.	CNC-17
0.25	+/-0.030	0.251	✓		Vern	GA-B
R0.15	+/-0.030	R0.156	✓		R-G	ref.
R0.06	+/-0.030	R0.063	✓		"	"
R0.38	+/-0.030	R0.375	✓		"	"
0.86	+/-0.030	0.857	✓		H-G	31006
126°	+/-0.5°	126°	✓		Angle M.	CNC-17
R0.19	+/-0.030	R0.188	✓		A-G	ref.
76°	+/-0.5°	76°	✓		Angle M.	CNC-17
3.84	+/-0.030	3.842	✓		H-G	31006
4.03	+/-0.030	4.029	✓		"	"
5.03	+/-0.030	5.032	✓		"	"
0.38	+/-0.030	0.376	✓		Vern	GA-B
R2.00	+/-0.030	R2.000	✓		R-G	ref.
0.38	+/-0.030	0.376	✓		Mic	GA-03
3.18	+/-0.030	3.184	✓		H-G	31006
R1.00	+/-0.030	R1.000	✓		R-G	ref.
3.96	+/-0.030	3.963	✓		Vern	GA-B
87°	+/-0.5°	87°	✓		Angle M.	CNC-17

DART AEROSPACE LTD		Work Order:	
Description: Bracket		Part Number:	D5237-5
Inspection Dwg: D5237 Rev: B		Page 2 of 2	

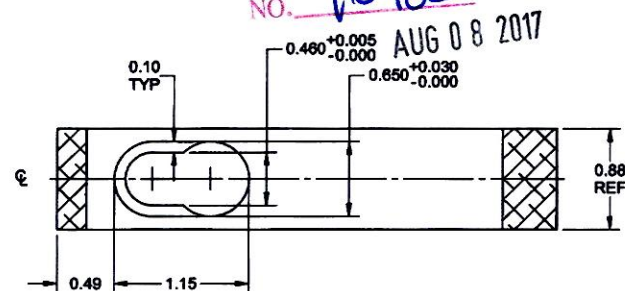
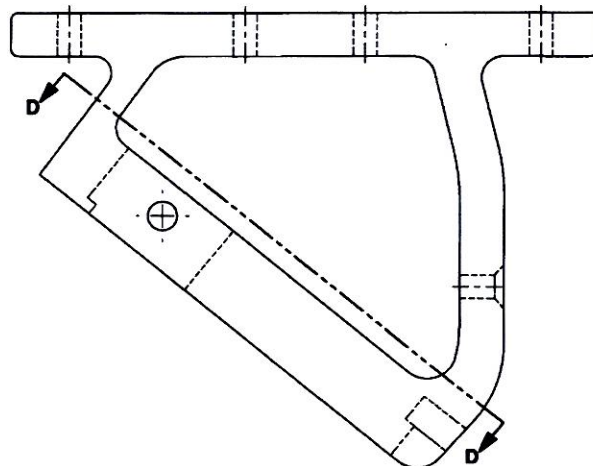
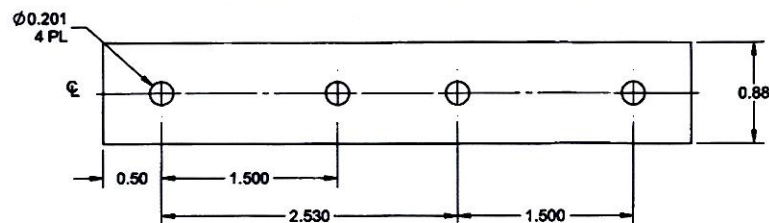
INSPECTION SHEET

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
R0.25	+/-0.030	R0.250	✓		A-6	ref.
2.39	+/-0.030	2.389	✓		H-6	31006
Ø0.201	+0.005/-0.001	Ø0.202	✓		Vern	GA-B
Ø0.385 x 100°	+/-0.010 x +/-0.5°	Ø0.387 x 100°	✓		"	"
0.88	+/-0.030	0.881	✓		"	"
0.580	+0.010/-0.015	0.5805	✓		H-6	31006
0.325	+0.000/-0.010	0.315	✓		"	"
0.655	+0.030/-0.000	0.660	✓		Vern	GA-B
0.460	+0.005/-0.000	0.460	✓		"	"

Measured by: <i>D.A.</i> ^{DAS} 08	Checked by: ¹⁴ 9-89	QC Inspector:
Date: 14-08-18 ⁰⁹	Date: 17/08/19	Date:

Engineering Approval: (If necessary)	Date:
--	--------------

Rev	Date	Change	Revised by	Approved
A	16.01.20	New Issue	KJ	<i>[Signature]</i>



SHOP COPY
RETURN TO
ENGINEERING
UNCONTROLLED COPY
SUBJECT TO AMENDMENT
WITHOUT NOTICE
WORK ORDER
NO. 16488

AUG 08 2017

SECTION D-D

NOTES:

- 1) MATERIAL: 6061-T6/T651/T6511/T62 ALUMINUM BAR
PER QQ-A-225/8 OR AMS-QQ-A-225/8 (OR AMS 4117/4128/4115/4116)
OR QQ-A-200/8 OR AMS-QQ-A-200/8 (OR AMS 4160)
OR ASTM B211 OR ASTM B211
OR 6061-T6/T62 ALUMINUM SHEET
PER QQ-A-250/11 OR AMS-QQ-A-250/11
OR AMS 4025 OR AMS 4027
OR ASTM B209
REF DART SPEC. M6061T6B/M6061T6S
- 2) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) BREAK SHARP EDGES: 0.005 TO 0.010 MAX
- 6) IDENTIFICATION: NONE
- 7) WEIGHT: 0.46 lbs

D5237-5 BRACKET

RELEASED
2015-12-07

APPROVED

DESIGN	VS	DART AEROSPACE LTD	
DRAWN	VS	HAWKESBURY, ONTARIO, CANADA	
CHECKED	RF	DRAWING NO.	REV. B
MFG. APPR.	JLM	D5237	SHEET 3 OF 6
APPROVED	HS	TITLE	SCALE
DE APPR.	DS	BRACKET	NTS
DATE	15.10.16	COPYRIGHT © 2014 BY DART AEROSPACE LTD	
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